PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 28 FEB 2006
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Applicant's or agent's file reference NC-10006/WO	**FOR FURTHER ACTION** See Form PCT/IPEA/416	
International application No. PCT/GB2005/000885	International filing date *(day/month/year)* 08.03.2005	Priority date *(day/month/year)* 08.03.2004
International Patent Classification (IPC) or national classification and IPC C07D471/04, A61K31/437, A61P3/00		
Applicant PROSIDION LIMITED et al.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 7 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☐ *sent to the applicant and to the International Bureau)* a total of sheets, as follows:
      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the opinion
☐	Box No. II	Priority
☒	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☒	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
06.01.2006	27.02.2006
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Stix-Malaun, E Telephone No. +49 89 2399-8057

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/GB2005/000885

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
   - ☐ international search (under Rules 12.3 and 23.1(b))
   - ☐ publication of the international application (under Rule 12.4)
   - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

   Description, Pages

   1-25 as originally filed

   Claims, Numbers

   1-16 as originally filed

   ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

* *If item 4 applies, some or all of these sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/GB2005/000885

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 12-15,16 (part)

because:

☒ the said international application, or the said claims Nos. 12-15 relate to the following subject matter which does not require an international preliminary examination (specify):

see separate sheet

☐ the description, claims or drawings *(indicate particular elements below)* or said claims Nos. are so unclear that no meaningful opinion could be formed *(specify)*:

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for the said claims Nos. 16 (part)

☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form	☐	has not been furnished
	☐	does not comply with the standard
the computer readable form	☐	has not been furnished
	☐	does not comply with the standard

☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.

☐ See separate sheet for further details

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-15,16 (part)
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-15,16 (part)
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-11,16 (part)
	No:	Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VI Certain documents cited

1. Certain published documents (Rule 70.10)

and / or

2. Non-written disclosures (Rule 70.9)

see separate sheet

III NON-ESTABLISHMENT

Claims 12-15 relate to subject-matter considered by this Authority to be covered by the provisions of Rule 67.1(iv) PCT. Consequently, no opinion will be formulated with respect to the industrial applicability of the subject-matter of these claims (Article 34(4)(a)(I) PCT).

Present claim 16 relates to compounds defined by reference to a desirable characteristic or property, namely "protected derivative". The claims cover all compounds having this characteristic or property, whereas the application provides support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT for only a very limited number of such compounds. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the compounds by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, the search has been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely those parts relating to the compounds as defined in claim 16,formula (IV) and the t-BOC protected derivative (see description, p. 10,l.23).

The applicant's response concerning to the functional definition "protected derivative" is not acceptable: The intermediates according to claim 16 are claimed as compounds per se. Depending on the type of reaction chosen end the respective reaction conditions too many structures are possible which could be interpreted as "protecting derivative": This would require an equally unquantifiable and thus unreasonable amount of experimentation, imposing a severe and undue burden on all those wishing to ascertain the scope of the claim, which is not in compliance with the clarity requirement of Article 6 PCT.

The decision cited by the applicant is only applicable for the European phase. In addition to that the said decision deals with process claims.

V REASONED STATEMENT

1. PRIOR ART

The documents cited in the International Search Report

D1: WO 03/037864 A (JAPAN TOBACCO INC; NAKAMURA, TAKESHI; TAKAGI, MASAKI; UEDA, NOBUHISA) 8 May 2003 (2003-05-08)

have been considered for the examination procedure.

2. NOVELTY

The subject-matter of the Claims is considered to be novel (Article 33(2) PCT). It differs from the indoles of D1 in the pyrrolopyridine unit.

3. INVENTIVE STEP

The subject-matter of the Claims appears to fulfil the requirements of Article 33(3) PCT for the following reasons:

(a)The problem of the present application may be seen in the provision of further pyrrolopyridin-2-carboxylic acid hydrazides which are inhibitors of the glycogen phosphorylase and therefore useful in the treatment of diseases such as diabetes.

The closest state of the art for the present application is represented by D1. D1 discloses structurally similar hydrazides having the same properties which do not fall under the present application as explained above.
In view of the fact that the molecules of D1 and the present ones are construed in exactly the same manner (except for the replacement of one carbon by nitrogen) the skilled person would assume that such a minor modification does not impair the alleged qualities.
Accordingly, the presently claimed solution appears to be obvious.

(b)Therefore, the problem underlying the present application should be seen in the provision of new hydrazides having unexpected properties over those of the closest prior art compounds (D1). In the absence of comparative test results or other appropriate information it is not possible to decide whether such a problem has been solved or not.

The applicant has convincingly shown that the alleged activity can be easily impaired by minor modifications in the field of inhibitors of the glycogen phosphorylase. In addition to that the presently claimed compounds appear to exhibit beneficial effects compared to the compounds of D1.

Accordingly the problem defined under item (b) is appears to be solved by examples for which biological tests have been carried out.

Inventive step can in principle be acknowledged.

In the regional phase it might become necessary to indicate at least one exemplified tested compound in order to justify the plausibility of the scope of claim 1.

4. INDUSTRIAL APPLICABILITY

For the assessment of the present Claims 12-15 on the question whether they are industrially applicable, no unified criteria exist in the PCT Contracting States. The patentability can also be dependent upon the formulation of the claims. The EPO, for example, does not recognize as industrially applicable the subject-matter of claims to the use of a compound in medical treatment, but may allow, however, claims to a known compound for first use in medical treatment and the use of such a compound for the manufacture of a medicament for a new medical treatment

VI CERTAIN DOCUMENTS CITED

D2: WO 2004/104001 A (OSI PHARMACEUTICALS, INC; BRADLEY, STUART, EDWARD; KRULLE, THOMAS, MAR) 2 December 2004 (2004-12-02)

D2 might become relevant in the regional phase.